

## TITLE OF THE INVENTION

Improved Lid for Beverage Containers

## 5 BACKGROUND OF THE DISCLOSURE

### 1. Field of the Invention

[0001] The present invention relates in general to beverage container lids, and particularly, disposable beverage container lids having retaining features for temporarily securing the lid onto a beverage container in a position such that the container contents are  
10 readily accessible.

### 2. Background Art

[0002] Lids for beverage containers have existed for many years and in a variety of forms. A typical disposable container lid for hot and cold drinks commonly served at fast food restaurants and coffee shops is usually formed from plastic or paper, and is optionally  
15 recyclable. Lids of this type are sometimes ergonomically designed to enable a consumer to drink from the container with little, if any, leakage or spillage, and often include means for tightly sealing the lid against the rim of a disposable beverage container.

[0003] Consumers of fast food and at coffee shops are increasingly concerned with health issues, which include the maintenance of sanitary conditions. Particularly in urban areas  
20 and other areas of high population density, individuals face risk of illness from communicable infection or disease, including illnesses transmitted through person-to-person contact, person-to-object contact, and contact with airborne pathogens. Thus, some businesses have embraced various efforts towards reducing the risk of transmission of infectious diseases, such as the wearing of latex gloves during food preparation and the regular wiping of counters and tabletops  
25 with disinfectant cleansers.

**[0004]** One instance in which many individuals entertain an actual or perceived risk of encountering an unsanitary condition is when removing the lid of a disposable cup. For example, coffee shops typically provide their customers with coffee beverages, which require the customer to use a common public kiosk to add any desired cream and/or sugar, and to stir  
5 their beverage. Such kiosks are typically used by a large volume of customers, thus precipitating the perception of possible contamination of kiosk countertops. While many customers may desire to set the cup lid down on the kiosk countertop to facilitate the desired preparation of their beverage, they may be hesitant to do so due to the perceived risk of exposure to unsanitary conditions on countertops that may be touched and/or coughed on by  
10 large numbers of people. Thus, there exists a need for disposable beverage container lids that, when removed from the container, are temporarily storable so as not to contact the counter or tabletop – thereby eliminating a potential transmission path for infectious diseases.

**[0005]** It is known in different contexts to employ tethering systems or hanging systems to temporarily store a removable closure. For example, some charcoal grill lids include a  
15 mechanism inside the grill lid to facilitate the temporary storage of the lid along the outer periphery of the grill so as to eliminate the risk of fire or burning possibly incurred by placing a hot lid on the ground or another surface while cooking. Also, some automobile gasoline caps have cutouts to permit the gas caps to be hung along the top edge of a gasoline cap filler door to prevent users from forgetting and/or losing the gas cap during refueling. However, these  
20 applications do not address sanitary concerns raised by handling of beverage container lids, nor are they readily adaptable to the cost, manufacture, storage and packaging requirements of a disposable lid for a beverage container.

**[0006]** Therefore, it would be desirable to provide a disposable or recyclable lid for beverage containers that may be temporarily supported by the container in a position allowing  
25 access to the container contents, while minimizing any leakage or spillage of the container

contents when secured to the container during normal use. It would also be desirable to provide such a lid for beverage containers that is inexpensive to manufacture and efficient to transport.

## SUMMARY OF THE INVENTION

[0007] A lid is provided for removable attachment to a cup. The lid may be disposable, and may be created from a recyclable material, such as plastic or paperboard. The lid includes a generally circular top surface. An aperture may be formed in the top surface to permit drinking  
5 or dispensing of cup contents while the lid is secured in an attached position. The lid further includes an annular side wall extending downwards from the periphery of the top surface. The annular side wall includes a coupling surface adapted to secure the lid onto the rim of the cup.

[0008] In accordance with one aspect of the invention, the annular side wall of the lid includes first and second apertures extending upwards from the lower edge of the annular side  
10 wall. The apertures can be placed over the rim of the cup to permit temporary hanging of the lid from the rim, thereby retaining the lid on the cup and away from potentially unclean surfaces, while permitting ready access to the contents of the cup. The first and second apertures may be optionally spaced apart by a distance approximately one-tenth the circumference of the lid. The lid may include a dispensing aperture for permitting dispensing of the cup contents while  
15 the lid is in its attached position closing the cup. The dispensing aperture is optionally located towards the periphery of the lid at a position opposite that of the first and second apertures.

[0009] In accordance with another aspect of the invention, the lid includes a hook structure formed from the lid side wall. The hook structure may be deformed inward to form a hook adapted to hang the lid from the cup rim. The hook structure can be formed from at least  
20 two lines of weakening, which may extend parallel to one another upwards from the lower edge of the side wall, and which are optionally spaced approximately one-eighth of an inch apart. An extension tab may be formed contiguous to the edge of the annular side wall and between the at least two lines of weakening, extending beyond the lower edge of the annular side wall. The lines of weakening may be score lines or lines of perforation, and may include tear arrest  
25 structures at their uppermost ends to prevent undesired tearing of the lid structure. The lid may

include a dispensing aperture, which may be located towards the periphery of the cup lid at a position approximately opposite that of the hook structure.

**[0010]** In accordance with yet another aspect of the invention, the lid may include a protrusion extending from the top surface of the lid. The protrusion can be positioned to rest on the cup rim to secure the lid along the outer periphery of the cup. The protrusion may include an extension arm and a hook portion, and the hook portion may have a longitudinal cross-section similar in shape to that of a radial cross-section of the cup rim, thereby providing a secure fit.

**[0011]** In accordance with a further aspect of the invention, a method is provided for using a cup having a removable lid. The lid is hung off of the cup rim in a position such that the contents of the cup are readily accessible. The cup contents are then accessed while the lid is retained by the cup rim. Finally, the lid is mounted onto the cup in a different position whereby the lid substantially covers the cup. The step of hanging the lid off of the cup rim can be accomplished by inserting the cup rim into at least two apertures formed in the lid. Alternatively, the hanging of the lid can be performed by deploying a hook structure from the lid and securing the hook structure onto the cup rim. The hook structure can be deployed by separating the hook structure from the lid side wall along at least two lines of weakness formed in the side wall, bending the hook structure inwards towards the center of the lid, and engaging the hook structure with the rim of the cup. Finally, the hanging of the lid from the cup rim can also be accomplished by attaching to the cup rim a protrusion extending downwards from a generally circular top surface of the lid.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

[0012] Fig. 1 is a perspective view of a beverage container lid according to one embodiment of the invention.

[0013] Fig. 2 is a top view of the beverage container lid according to the embodiment of

5 Fig. 1.

[0014] Fig. 3 is another perspective view, shown inverted, of the beverage container lid according to the embodiment of Fig. 1.

[0015] Fig. 4 is a side view of the beverage container lid of Fig. 1 shown in its temporary storage position on a representative beverage container.

10 [0016] Fig. 5 is a perspective view of the beverage container lid of Fig. 1 shown in its temporary storage position on a representative beverage container.

[0017] Fig. 6 is a side view of the beverage container lid of Fig. 1 shown mounted atop a representative beverage container during normal use.

[0018] Fig. 7 is a perspective view of the beverage container lid of Fig. 1 shown  
15 mounted atop a representative beverage container during normal use.

[0019] Fig. 8 is an inverted side view of a beverage container lid according to another embodiment of the invention.

[0020] Fig. 9 is a perspective view, shown inverted, of the beverage container lid of Fig. 8 shown with an articulated hook.

20 [0021] Fig. 10 is a perspective view of the beverage container lid of Fig. 8 shown in its temporary storage position on a representative beverage container.

[0022] Fig. 11 is a perspective view of the beverage container lid of Fig. 8 shown mounted atop a representative beverage container during normal use.

[0023] Fig. 12 is a perspective view, shown inverted, of an alternative embodiment of  
25 the invention.

**[0024]** Fig. 13 is an inverted side view of the alternative embodiment of Fig. 12 shown with an articulated protrusion and hook.

**[0025]** Fig. 14 is a perspective view, of the alternative embodiment of Fig. 12 shown in its temporary storage position on a representative beverage container.

5 **[0026]** Fig. 15 is an inverted perspective view of the alternative embodiment of Fig. 12 shown with an integral protrusion.

**[0027]** Fig. 16 is an inverted side view of the alternative embodiment of Fig. 15 shown with an articulated protrusion and hook.

**[0028]** Fig. 17 is a perspective view, of the alternative embodiment of Fig. 15 shown in  
10 its temporary storage position on a representative beverage container.

## DETAILED DESCRIPTION OF THE INVENTION

**[0029]** While this invention is susceptible of embodiment in many different forms, there are shown in the drawings and will herein be described in detail, certain specific embodiments with the understanding that the present disclosure should be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiments so illustrated.

**[0030]** According to one embodiment of the invention, beverage container lid **10** is shown in Figs. 1 - 7. Lid **10**, as illustrated in Fig. 1, is generally circular in shape and includes aperture **16** for drinking or dispensing fluids from within beverage cup **12** (Fig. 4). For improved fluid flow during dispensing, lid **10** may also incorporate at least one breather hole, such as breather holes **17** and **18** of Fig. 2. Lid **10** further includes side wall **20** having an annular attachment portion **22** for securely, yet removably, connecting lid **10** to rim **14** (Fig. 5) on beverage cup **12** while preventing leakage of the contents of beverage cup **12** during use. It is understood that while lid **10** is generally circular in shape, the top surface of the lid may include variations in elevation to form structures such as a ridge around the perimeter of the lid top surface, or a receptacle in the lid surface to facilitate drinking, such as are known in the relevant art. Preferably, lid **10** is fabricated from disposable and/or recyclable materials, such as thermoplastics (i.e., polystyrene and the like), or paperboard.

**[0031]** Fig. 3 shows beverage container lid **10** in an inverted position. Annular attachment portion **22** includes apertures **24** and **26** originating at the lower edge **34** of side wall **20** and extending into side wall **20**. To insure proper sealing of beverage cup **12** along the entire perimeter of beverage cup rim **14** (Fig. 5), apertures **24** and **26** preferably do not extend into side wall **20** beyond that point at which cup rim **14** contacts annular attachment portion **22** when lid **10** is mounted on cup **12**. Annular attachment portion **22** further includes corners **28** and **30** and hook **32**, each of which are created by the formation of apertures **24** and **26**. Apertures **24** and **26** may be fabricated in lid **10** by the manufacturer or, alternatively, may be



created by the consumer by severing side wall **20** of lid **10** along lines of weakness fabricated in the lid by the manufacturer defining apertures **24** and **26**.

**[0032]** Figs. 4 – 5 show the improved beverage container lid **10** mounted to beverage cup **12** in the temporary open position, whereby the user is provided with access to the contents of cup **12**. In the position of Figs. 4 and 5, the lid facilitates the refilling of hot or cold beverages, the addition of cream and/or sugar to coffee beverages, etc., without setting lid **10** down upon potentially unsanitary surfaces. Lid **10** is hung from rim **14** by lowering lid **10** to position apertures **24** and **26** over rim **14**, then rotating lid **10** downward to engage hook **32** over rim **14**, while also wedging corners **28** and **30** underneath rim **14**. Conversely, upwardly rotating and lifting lid **10** releases lid **10** from rim **14**, such that lid **10** can be remounted on cup **12** in the closed position, shown in Figs. 6-7.

**[0033]** Optionally, apertures **24** and **26** are located along annular attachment portion **22** at a location that is approximately opposite from the side of lid **10** at which drinking aperture **16** is positioned. Thus, to the extent that the seal between cup rim **14** and lid **12** may be weakened when in the closed position due to the presence of apertures **24** and **26**, the location of the potentially weakened seal is one that is less likely to be regularly exposed to the contents of beverage cup **12** during typical drinking activity.

**[0034]** Because the temporary hanging mechanism is comprised of apertures in beverage cup lid **10**, such that no portion of the lid **10** lies outside the plane of side wall **20**, lid **10** can be readily and efficiently stacked with other like lids for convenience and space-efficient packaging, storage and transportation.

**[0035]** An alternative embodiment of the invention is illustrated in Figs. 8 – 11. Like lid **10**, improved beverage container lid **36** is generally circular in shape and includes hole **42** (see Fig. 11) for drinking or dispensing fluids from within beverage cup **38**. For improved fluid flow during dispensing, lid **36** optionally incorporates breather hole **43** (see Fig. 11). Lid **36** further comprises side wall **44** having an annular attachment portion **46** for securely, yet removably,

connecting lid **36** to rim **40** of beverage cup **38** to prevent leakage of the contents of beverage cup **38** during use. Preferably, lid **36** is fabricated from disposable and/or recyclable materials, such as thermoplastics (i.e., polystyrene and the like), or paperboard.

**[0036]** Annular side wall **44** includes lines of weakness **48** and **50**, oriented parallel to one another. Lines of weakness **48** and **50** originate at lower edge **52** of side wall **44** and extend toward the top edge **54** of side wall **44**. A temporary mounting hook **56** can be formed by severing side wall **44** at lines of weakness **48** and **50**, then bending the material between the lines of weakness **48** and **50** inwards towards the center of lid **36** to form hook **56**, as shown in the articulated configuration in Fig. 9. Lines of weakness **48** and **50** can be formed from structures such as score lines or perforation lines. Optionally, propagation of the resultant “tear” along lines of weakness **48** and **50** may be arrested via any number of known solutions, such as by incorporation of tear arresting structures **49** and **51**, or tear arrest fillets, at the desired termination points in side wall **44**, or via a change in the directional orientation of the raw material from which the lid is formed at the desired point of termination for the lines of weakness.

**[0037]** The portion of side wall **44** that is bent inward to form hook **56** may be optionally fabricated by the lid manufacturer to extend below lower lid edge **52** for easy identification of the “tear tab” along the periphery of the lid by a consumer. Also, lines of weakness **49** and **51** can also be fabricated by the lid manufacturer as score lines extending through the entire thickness of lid **36**, thereby avoiding the need for a user to engage in the tab tearing operation prior to use of hook **56** for temporarily mounting lid **36** onto rim **40** of cup **38**.

**[0038]** Fig. 10 illustrates lid **36** in its temporary mounting position, facilitating access to the contents of cup **38**. Lid **36** can be removably mounted on cup **38** by hanging lid **36** from cup rim **40** by articulated hook **56**. As is apparent from the illustration of Fig. 10, lid **36** may be hung from any point along the periphery of cup rim **40**.

[0039] Fig. 11 illustrates a perspective view of lid **36** mounted on cup **38** in a closed position, whereby the contents of cup **38** can be consumed or transported with reduced risk of spillage. When lid **36** is remounted on cup **38**, previously-articulated hook **56** is forced back outwards by cup rim **40** to lie flush with the remainder of annular side wall **44** and to form a seal with cup rim **40** to prevent spillage of the contents of cup **38**. Also, it may be desirable in some applications to minimize the risk of content leakage through score lines **48** and **50** by positioning hook **56** at a location on lid **36** that is least likely to be exposed to the contents of cup **38**, such as a portion of lid **36** that lies opposite the location of drinking hole **42**.

[0040] Like lid **10**, lid **36** also includes no portions lying outside the plane of side wall **44** as long as hanger **56** is placed into its non-articulated position, thereby facilitating convenient and space-efficient packaging, storage and transportation.

[0041] Another embodiment of the invention is shown in Figs. 12 – 17. Lid **70** includes protrusion **76** extending generally perpendicularly from the underside surface of lid **70** in a cantilevered fashion. Protrusion **76** includes hook **78** on its cantilevered end. While protrusion **76** is illustrated in Figs. 12 – 14 as extending to a point slightly beyond the lower edge **80** of annular attachment portion **82**, it is understood that protrusions of varying lengths can be employed, thereby controlling the angle at which lid **70** rests when temporarily affixed to cup **72** in the open position, as illustrated in Fig. 14.

[0042] Protrusion **76** in Figs. 12 – 14 may initially be manufactured as a separate piece, such as through injection molding, that is later fixedly attached to the underside of lid **70** via any one of many well-known fastening means, such as by gluing, etc. (see Figs. 12-14). Alternatively, protrusion **76** may optionally be manufactured integral and homogenously to the underside of lid **70** (see protrusion **76a** in Figs. 15 – 17), such as via injection molding or vacuum forming the entire lid/protrusion assembly. Preferably, lid **70** and protrusion **76/76a** are made of disposable or recyclable materials, but lid **70** and protrusion **76** may individually comprise similar or different materials.

**[0043]** Lid 70 of Figs. 12-17 may be adapted to permit improved stacking capabilities for more efficient packaging, storage and transportation. For example, in embodiments where protrusion 76/76a extend outward from lid 70 past the plane of lid edge 80, the material stiffness and geometry of protrusion 76/76a and hook 78 may be selected such that hook 78 curls to a semi-closed position when pressure is applied axially along protrusion 76/76a. Alternatively, protrusion 76/76a may be adapted to bend at the junction with the underside of lid 70, such that protrusion 76/76a can be temporarily positioned to lie approximately flush with the underside of lid 70, thereby facilitating stacking above another like cup lid.

**[0044]** In each of the embodiments, it is to be understood that the cups, and associated lids, may be provided in different sizes, shapes, and materials, without inhibiting deployment of the present invention. In addition, it should be understood that each of the embodiments are not limited to merely beverage container lids, and may be directed to lids for other types of containers, as well.

**[0045]** The foregoing description and drawings merely explain and illustrate the invention, and the invention is not so limited as those skilled in the art who have the disclosure before them will be able to make modifications and variations therein without departing from the scope of the invention.